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EXAMINER

THOMPSON, JAMES A

ART UNIT

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2625

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,643	Applicant(s) BOYCE ET AL.	
	Examiner James A. Thompson	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 5, lines 8-10, filed 28 September 2010, with respect to the rejection of claim 12 under 35 U.S.C. § 101 have been fully considered and are persuasive. The rejection of claim 12 under 35 U.S.C. § 101 has been withdrawn.
2. Applicant's arguments, see page 5, lines 11-17, filed 28 September 2010, with respect to the rejection of claim 6 under 35 U.S.C. § 112, second paragraph have been fully considered and are persuasive. The rejection of claim 6 under 35 U.S.C. § 112, second paragraph has been withdrawn.
3. Applicant's arguments filed 28 September 2010 have been fully considered but they are not persuasive.

Regarding page 5, lines 1-7: Applicant's amendments to the claims have been fully considered by Examiner and are addressed in the remarks and rejections set forth below.

Regarding page 5, line 18 to page 7, line 17:

Applicant argues that Reitmeier (US-6,118,498) does not teach that the demultiplexor is comprised within and in direct signal communication with the decoding portion.

Examiner replies that figure 1 of Reitmeier constitutes the video decoder, and not merely element 45 of figure 1, as set forth in the previous rejection of 29 July 2010. Thus, the demultiplexor is comprised within the video decoder. Element 45 of figure 1 is simply a

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standard MPEG decoder, and thus performs that portion of the overall video decoder system shown in figure 1.

Further, the demultiplexor (35) described in column 9, line 6 to column 10, line 5 of Reitmeier demultiplexes the program transport stream which is then coupled to the decoder (45) via a switch (40). Thus, the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder.

Regarding page 7, line 18 to page 8, line 27:

Applicant argues that the memory (34) in figure 1 is not comprised within the video decoder.

Examiner replies that, as discussed above and explicitly set forth in the previous office action, figure 1 of Reitmeier is the video decoder, not simply element 45 of figure 1.

Applicant argues that the memory (34) is not for storing reference pictures, but rather allegedly only for scanning channels.

Examiner replies that column 5, lines 61-65 of Reitmeier explicitly teaches that the memory stores I-pictures. I-pictures are reference pictures. Claims 1 and 10 do not require that multiple reference pictures are stored *at the same time*, but rather that reference pictures are stored in the memory. The cited portion of Reitmeier also explicitly states that the retrieved I-frame is coupled to the video decoder. Thus, the reference picture is used in video decoding, even if the video decoding also includes a channel change operation.

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Regarding page 8, line 28 to page 9, line 21:

Applicant argues that the remaining cited references do not cure the alleged deficiency of Reitmeier, and that the remaining claims are allegedly allowable at least due to their respective dependencies from either claim 1 or claim 10.

Examiner replies that, as discussed above, claims 1 and 10 are fully taught by Reitmeier. Therefore, claims 1 and 10 are not allowable, and the remaining claims cannot therefore be allowable merely due to their respective dependencies from either claim 1 or claim 10.

Regarding page 9, line 22 to page 10, line 11:

Applicant argues that Reitmeier does not teach the post-processing of claim 3 since the memory (34) is disposed before the video decoder (35).

Examiner replies that column 5, lines 1-9 of Reitmeier were cited as teaching claim 3. The cited portion does not relate to the memory (34), but rather to the format converter (50), which is disposed *after* the video decoder (35). Again, the video decoder (35) corresponds to the recited normal decoding portion, and is not the entire recited video decoder. The format converter (50) performs post-processing and outputs the data to the display, as previously recited in claim 3. Applicant's amendments to claim 3 now require that the data is selectably output to the at least one normal frame store. Thus, new grounds of rejection, which are necessitated by the amendments, have been required for claim 3.

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Regarding page 10, line 12 to page 11, line 17:

Applicant argues that the upsampling taught by Brooks (US-7,143,432) would change the principle of operation of Reitmeier.

Examiner replies that the upsampling taught by Brooks occurs before the video data is output to the display. Thus, the principle of operation of Reitmeier is unaffected. Brooks merely adds functionality to the overall system taught by Reitmeier. Including the functionality of Brooks would allow the combined system to provide a better output video by matching the characteristics of the display. An example of this would be if the video output is standard definition and the display is high definition. One would need to provide upsampling to obtain a better video output for the display.

Regarding page 11, lines 18-21:

Applicant argues that Examiner has not even addressed the limitation “upsampling lower resolution channel change stream pictures” as recited in claim 11.

Examiner replies that claim 11 recites a “video decoding method as defined in Claim 10, further comprising *at least one of:*” a series of steps [emphasis added]. Thus, it is not required that Reitmeier teach each and every step recited in claim 11. If Reitmeier teaches only one of the six recited steps, then Reitmeier fully anticipates claim 11. Reitmeier teaches four of the six recited steps, and thus fully anticipates claim 11.

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Regarding page 11, lines 22-25: In conclusion, the pending claims are subject to prior art rejections, and therefore are not allowable. The new grounds of rejection are necessitated by Applicant's amendments to the claims. Therefore, **the present action is made final.**

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4 and 7-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Reitmeier (US-6,118,498).

Regarding claim 1: Reitmeier discloses a video decoder for receiving compressed stream data and providing decompressed video output (figure 1 and column 4, lines 43-49 of Reitmeier), the decoder comprising: a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream (figure 3(324) and column 9, line 63 to column 10, line 5 of Reitmeier – *see also column 4, lines 46-49 of Reitmeier which shows that the stream data is compressed stream data*); a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams (figure 3(328) and column 9, line 67 to column 10, line 12 of Reitmeier), and providing decompressed video output (column 4, lines 47-49 of Reitmeier); and at least one normal frame store in signal communication with the normal

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decoding portion for storing reference pictures (figure 1(34) and column 5, lines 61-65 of Reitmeier).

Regarding claim 4: Reitmeier discloses means for selecting a compressed picture to decode from one of a normal stream and a channel change stream (column 4, lines 43-49 of Reitmeier).

Regarding claim 7: Reitmeier discloses means for decoding channel change pictures from user data of corresponding normal stream pictures (column 10, lines 9-27 of Reitmeier – *user data regarding the different normal picture streams, such as “next” and “recent-1”, is used in decoding channel change pictures*).

Regarding claim 8: Reitmeier discloses means for responding to a signal from an encoder indicating whether to use normal stream or channel change stream pictures for subsequent channel change stream intra-coded pictures (column 5, lines 1-6 and lines 16-22 of Reitmeier – *selected mode determines which stream is used*).

Regarding claim 9: Reitmeier discloses means for post-processing the output of the normal decoder to reduce the abruptness of a transition from lower-quality to normal quality output (column 5, lines 37-43 of Reitmeier).

Regarding claim 10: Reitmeier discloses, in a video decoder, a video decoding method for receiving compressed stream data and providing decompressed video output (figure 1 and column 4, lines 43-49 of Reitmeier), the method comprising: receiving the compressed stream data and separating the normal stream and the channel change stream (figure 3(324) and column 9, line 63 to column 10, line 5 of Reitmeier – *see also column 4, lines 46-49 of Reitmeier which shows that the stream data is compressed stream data*); receiving at least one of the compressed

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normal and channel change streams (figure 3(328) and column 10, lines 3-12 of Reitmeier), and providing decompressed video output (column 4, lines 46-49 of Reitmeier); and storing reference pictures for use in decoding inter-coded pictures (figure 1(34) and column 5, lines 61-65 of Reitmeier).

Regarding claim 11: Reitmeier discloses at least one of: selecting a compressed picture to decode from one of a normal stream and a channel change stream (column 4, lines 43-49 of Reitmeier); up-sampling lower resolution channel change stream pictures; decoding redundant picture syntax in compliance with the JVT standard; decoding channel change pictures from user data of corresponding normal stream pictures (column 10, lines 9-27 of Reitmeier – *user data regarding the different normal picture streams, such as “next” and “recent-1”, is used in decoding channel change pictures*); responding to a signal from an encoder indicating whether to use normal stream or channel change stream pictures for subsequent channel change stream intra-coded pictures (column 5, lines 1-6 and lines 16-22 of Reitmeier – *selected mode determines which stream is used*); and post-processing the output of the normal decoder to reduce the abruptness of a transition from lower-quality to normal quality output (column 5, lines 37-43 of Reitmeier) (*claim requires “at least one of” and more than one of is taught by Reitmeier*).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reitmeier (US-6,118,498) in view of Brooks (US-7,143,432).

Regarding claim 2: Reitmeier discloses a lower-resolution decoding portion in signal communication with the demultiplexor for receiving the compressed channel change stream (figure 1(32) and column 6, lines 4-16 of Reitmeier); at least one channel change frame store in signal communication with the lower-resolution decoding portion for storing reference pictures (figure 1(34) and column 5, lines 61-65 of Reitmeier).

Reitmeier does not disclose expressly an up-sampling unit in signal communication with the lower-resolution decoding portion for up-sampling decompressed video data and selectably outputting said data to at least one of the at least one normal frame store and a display.

Brooks discloses an up-sampling unit in signal communication with the lower-resolution decoding portion for up-sampling decompressed video data and selectably outputting said data to at least one of the at least one normal frame store and a display (figure 6A(860) and column 18, lines 8-18 of Brooks).

Reitmeier and Brooks are analogous art because they are from the same field of endeavor, namely control, processing and output of digital video image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to up-sample the decompressed video data before outputting to a display, as taught by Brooks. The motivation for doing so would have been to provide a better output video by matching the characteristics of the display. Therefore, it would have been obvious to combine Brooks with Reitmeier to obtain the invention as specified in claim 2.

Regarding claim 5: Reitmeier does not disclose expressly means for up-sampling lower resolution channel change stream pictures.

Brooks discloses means for up-sampling lower resolution stream pictures (figure 6A(860) and column 18, lines 8-18 of Brooks).

Reitmeier and Brooks are analogous art because they are from the same field of endeavor, namely control, processing and output of digital video image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to up-sample the video data before outputting to a display, as taught by Brooks. By combination with Reitmeier, the stream pictures would be the channel change stream pictures. The motivation for doing so would have been to provide a better output video by matching the characteristics of the display. Therefore, it would have been obvious to combine Brooks with Reitmeier to obtain the invention as specified in claim 5.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reitmeier (US-6,118,498) in view of Laksono (US-7,675,972).

Regarding claim 3: Reitmeier does not disclose expressly a post-processing filter in signal communication with the normal decoding portion for post-processing decompressed video data and selectably outputting said data to at least one normal frame store.

Laksono discloses a post-processing filter in signal communication with a normal decoding portion for post-processing decompressed video data and selectably outputting said data to at least one normal frame store (column 3, lines 22-37 of Laksono – *post-processing performed so as to rapidly update motion vectors and improve video encoding/decoding*).

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Reitmeier and Laksono are analogous art because they are from the same field of endeavor, namely digital video encoding and decoding. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to post-process the decompressed video data and selectably outputting said data to at least one normal frame store, as taught by Laksono. The motivation for doing so would have been to improve the video data processing speed by more rapidly updating the motion vectors. Therefore, it would have been obvious to combine Laksono with Reitmeier to obtain the invention as specified in claim 3.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reitmeier (US-6,118,498) in view of well-known prior art.

Regarding claim 6: Reitmeier discloses means for decoding redundant picture syntax (column 9, lines 1-14 of Reitmeier).

Reitmeier does not disclose expressly that the decoding is in compliance with the JVT/H.264/MPEG AVC standards.

Official Notice is taken that the JVT/H.264/MPEG AVC standards are old, well-known and expected in the art. The use of a particular standard is necessary for the actual implementation of a video encoding/decoding scheme. The JVT/H.264/MPEG AVC standards are simply commonly-used standards that one of ordinary skill in the art at the time of the invention would have been able to apply to the invention. Therefore, it would have been obvious to combine the well-known prior art with Reitmeier to obtain the invention as specified in claim 6.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/
Primary Examiner, Art Unit 2625

30 September 2010